



United States Department of Agriculture

Water and Climate Update

March 21, 2024

The Natural Resources Conservation Service produces this weekly report using data and products from the [National Water and Climate Center](#) and other agencies. The report focuses on seasonal snowpack, precipitation, temperature, and drought conditions in the U.S.

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| Precipitation | 4 | Other Climatic and Water Supply Indicators | 13 |
| Temperature..... | 8 | More Information..... | 19 |

Colorado Rockies receive record snow accumulation

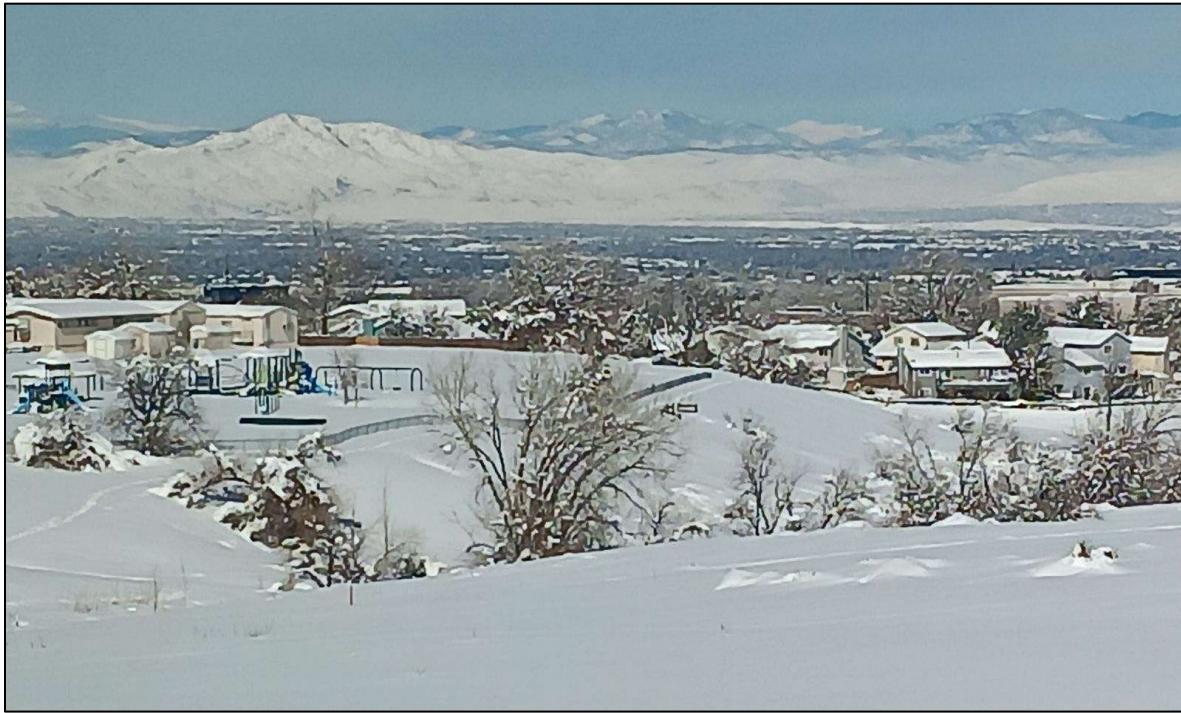


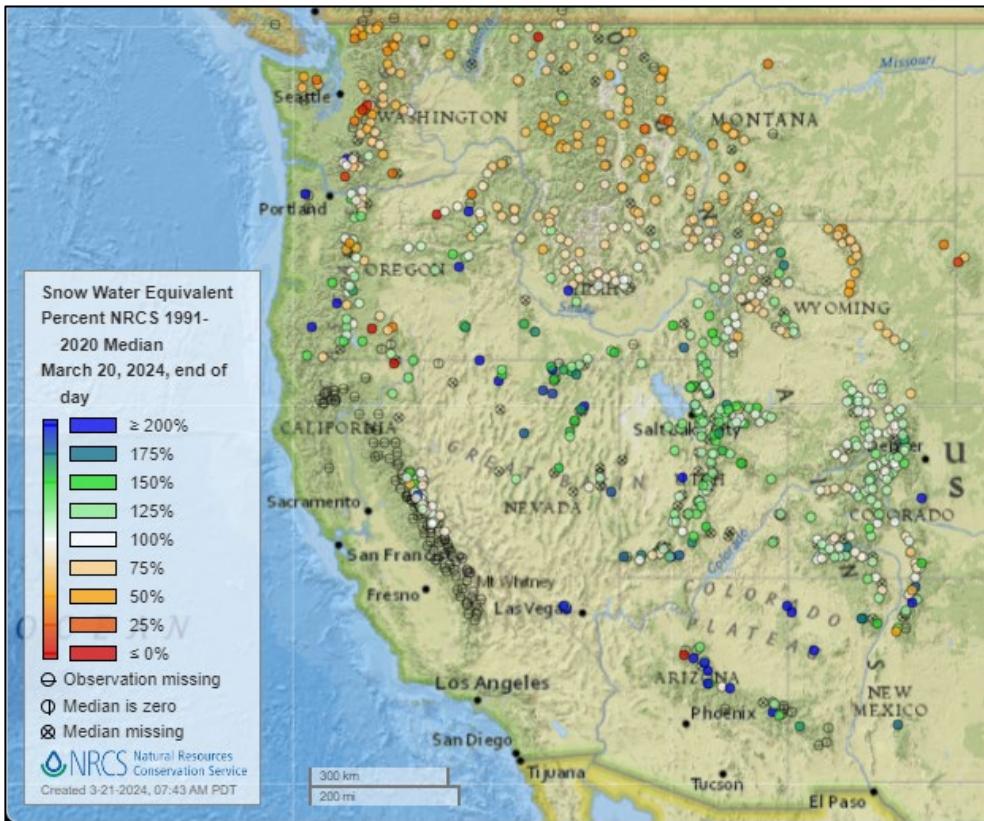
Photo by Gary Schneider

A powerful storm system brought considerable snowfall to Denver and the Colorado Rocky Mountains between March 13–15. Over a foot of new snow was measured in parts of the city, and though the event did not set a record for Denver, it was noted as the most significant snowstorm the area has experienced in three years. The storm deposited several feet of new snow in the mountains outside the city, with numerous NRCS SNOTEL stations in the region reporting a record amount of snow accumulation over the three-day period.

Related:

- [NRCS SNOTEL Snowpack Records March 13-15](#) – Interactive Map, NRCS Snow Survey & Water Supply Forecasting Program
- [Snowstorm from March 13th through March 15th, 2024](#) – National Weather Service
- [2 Colorado mountain towns buried in over 5 feet of snow](#) – KDVR (Denver, CO)
- [Powerful storm buries Colorado under nearly 4 feet of snow and spawns tornadoes in central US](#) – CNN

Snow



[Snow water equivalent percent of median map](#)

See also:
[Snow water equivalent values \(inches\) map](#)

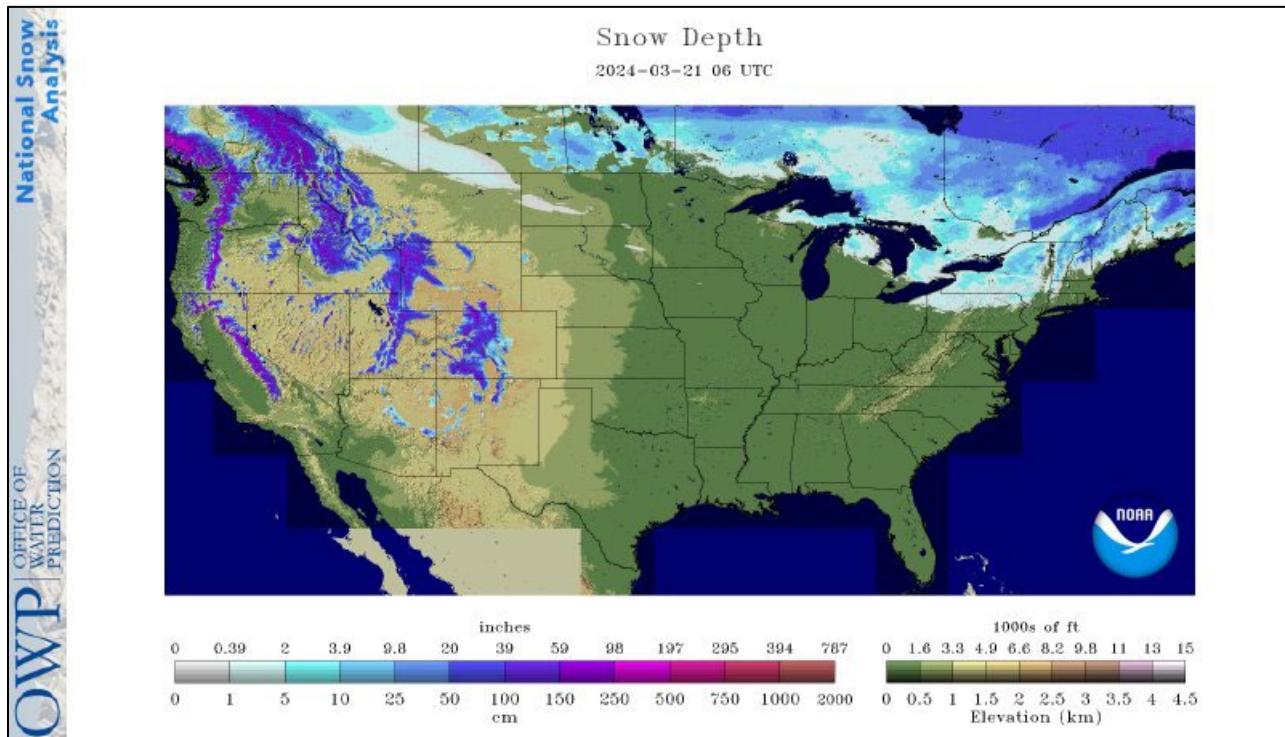


[Alaska snow water equivalent percent of median map](#)

See also:
[Alaska snow water equivalent values \(inches\) map](#)

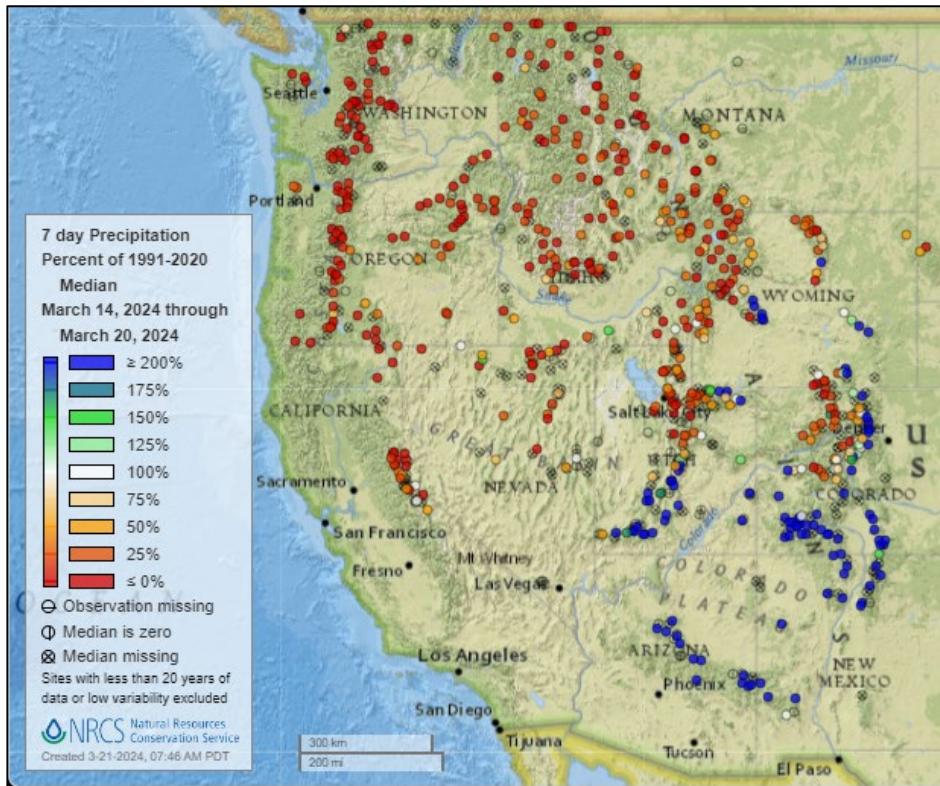
Current Snow Depth, National Weather Service Snow Analysis

Source: NOAA NWS National Operational Hydrologic Remote Sensing Center



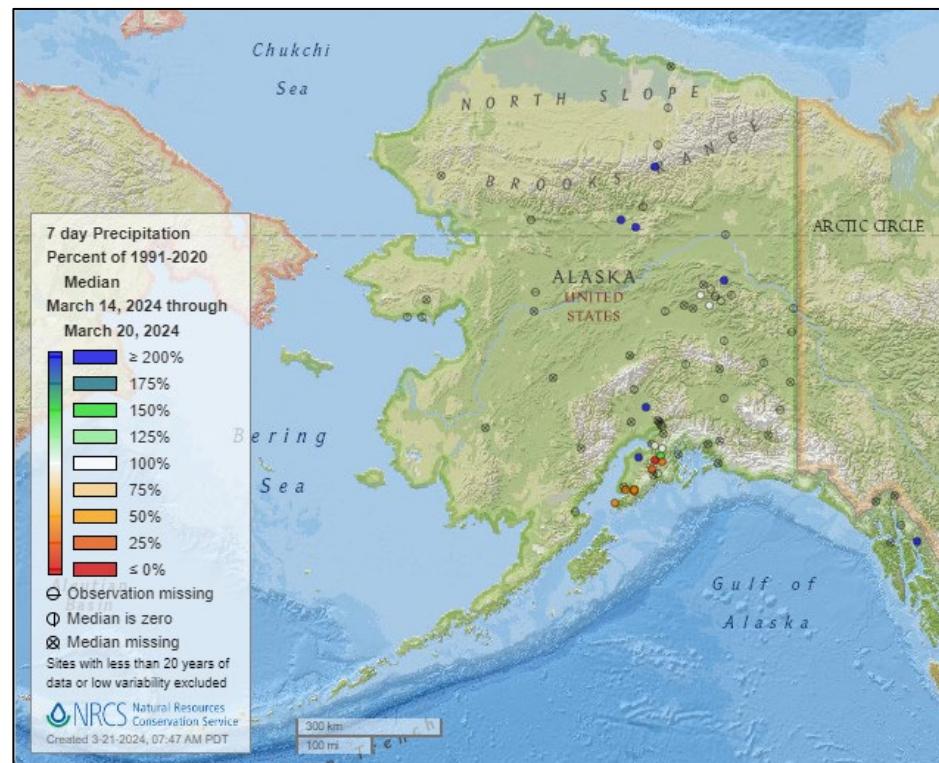
Precipitation

Last 7 Days, NRCS SNOTEL Network



[7-day precipitation percent of median map](#)

See also:
[7-day total precipitation values \(inches\) map](#)



[Alaska 7-day precipitation percent of median map](#)

See also:
[Alaska 7-day total precipitation values \(inches\) map](#)

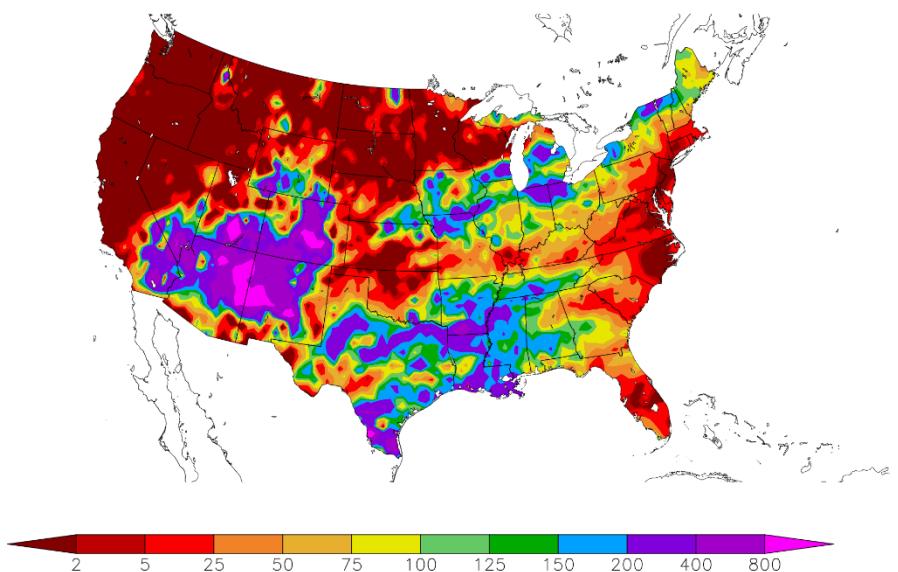
Last 7 Days, National Weather Service (NWS) Networks

Source: Regional Climate Centers

[7-day precipitation percent of normal map](#) for the continental U.S.

Percent of Normal Precipitation (%)
3/14/2024 – 3/20/2024

See also: [7-day total precipitation values \(inches\) map](#)



Generated 3/21/2024 at HPRCC using provisional data.

NOAA Regional Climate Centers

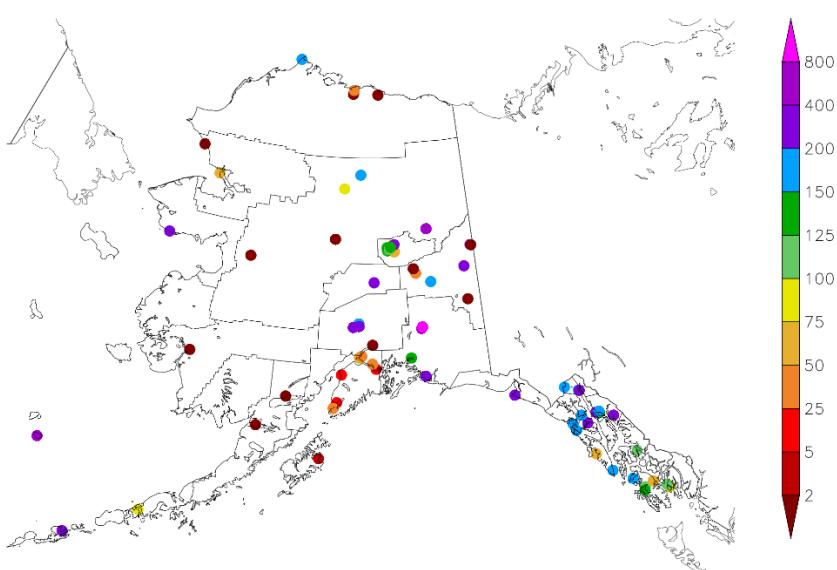
Last 7 Days, National Weather Service (NWS) Networks

Source: Regional Climate Centers

[7-day precipitation percent of normal map](#) for Alaska.

Percent of Normal Precipitation (%)
3/14/2024 – 3/20/2024

See also:
[7-day total precipitation values \(inches\) map](#)



Generated 3/21/2024 at HPRCC using provisional data.

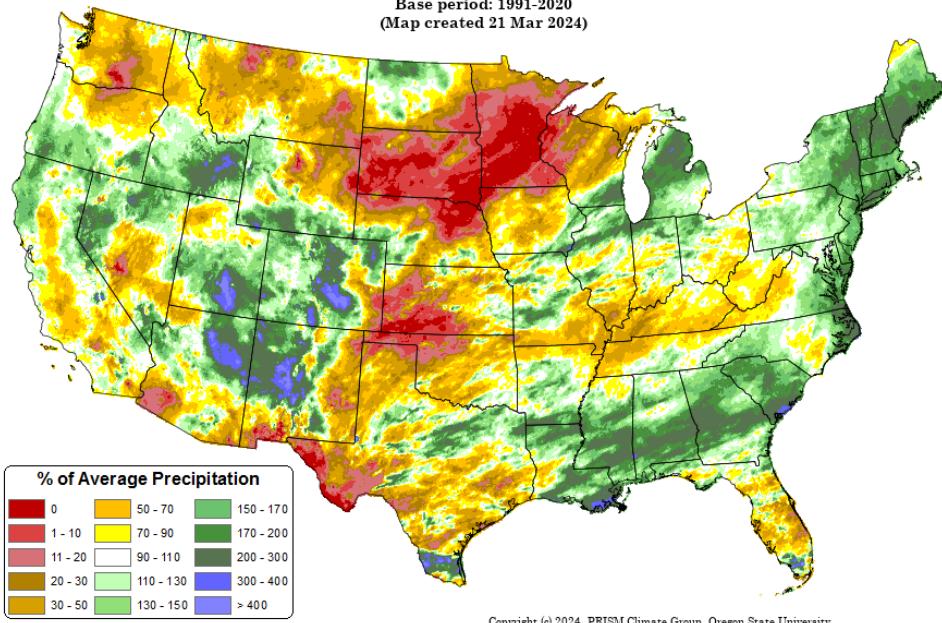
NOAA Regional Climate Centers

Month-to-Date, All Available Data Including SNOTEL and NWS Networks

Source: PRISM

Total Precipitation Anomaly: 01 Mar 2024 - 20 Mar 2024

Period ending 7 AM EST 20 Mar 2024
Base period: 1991-2020
(Map created 21 Mar 2024)



[Month-to-date national total precipitation anomaly map](#)

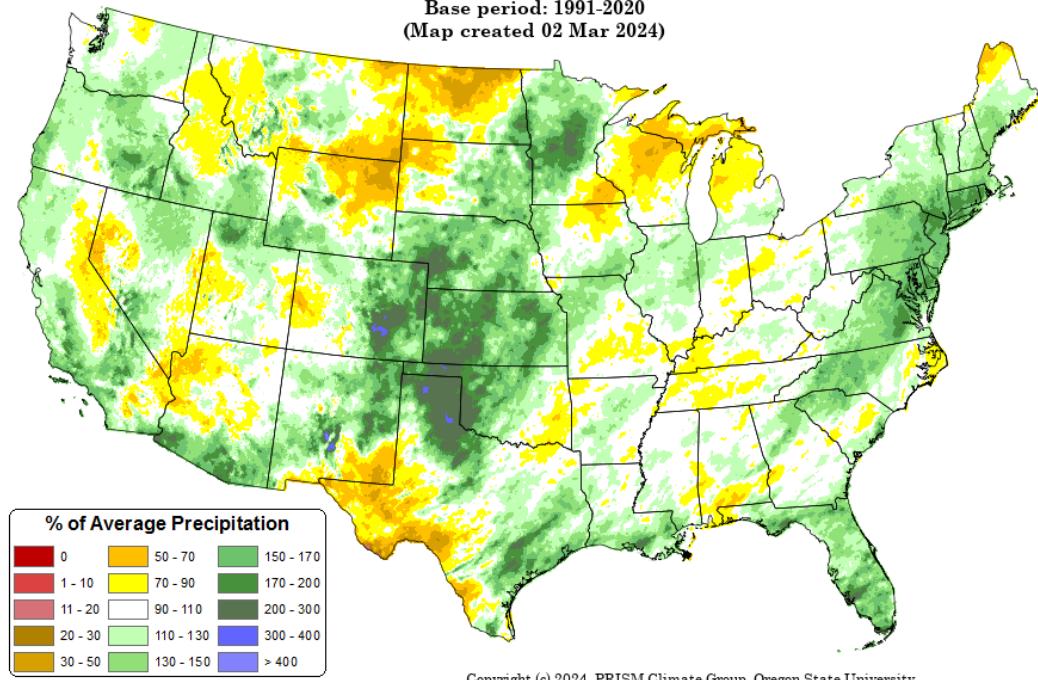
Last 3 Months, All Available Data Including SNOTEL and NWS Networks

Source: PRISM

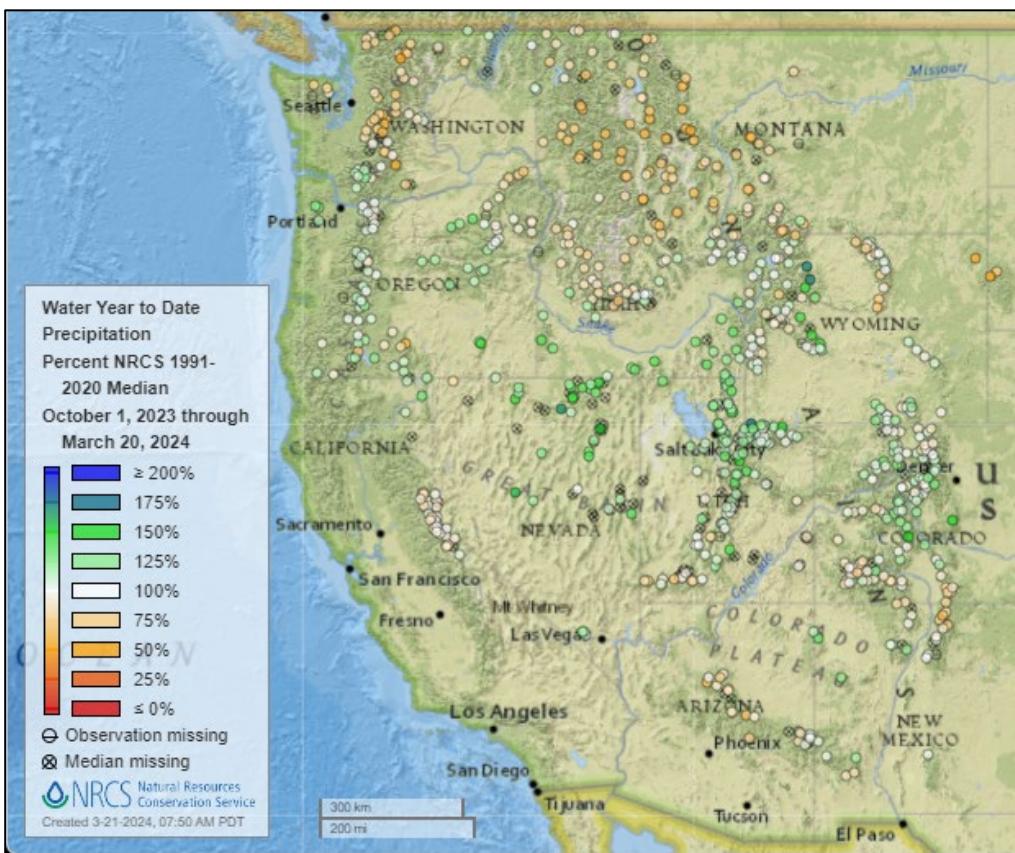
[December 2023 through February 2024 precipitation anomaly map](#)

Total Precipitation Anomaly: Dec 2023 - Feb 2024

Period ending 7 AM EST 29 Feb 2024
Base period: 1991-2020
(Map created 02 Mar 2024)



Water Year-to-Date, NRCS SNOTEL Network

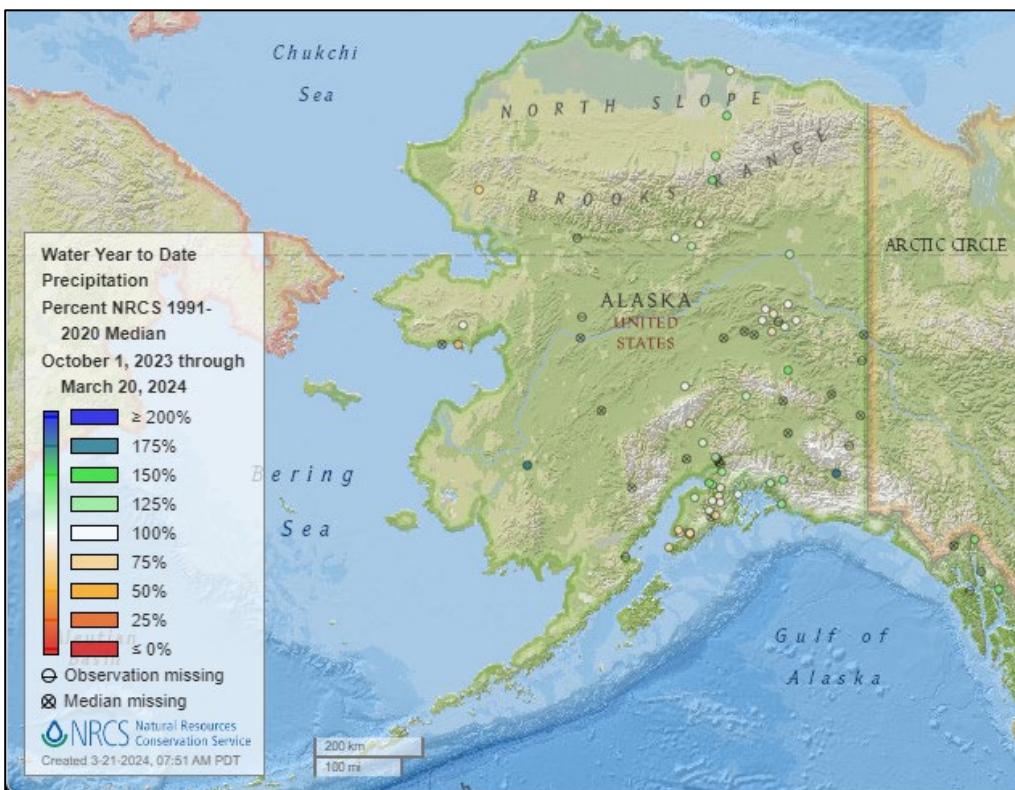


[2024 water year-to-date precipitation percent of median map](#)

See also:

[2024 water year-to-date precipitation percent of average map](#)

[2024 water year-to-date precipitation values \(inches\) map](#)



[Alaska 2024 water year-to-date precipitation percent of median map](#)

See also:

[Alaska 2024 water year-to-date precipitation percent of average map](#)

[Alaska 2024 water year-to-date precipitation values \(inches\) map](#)

Temperature

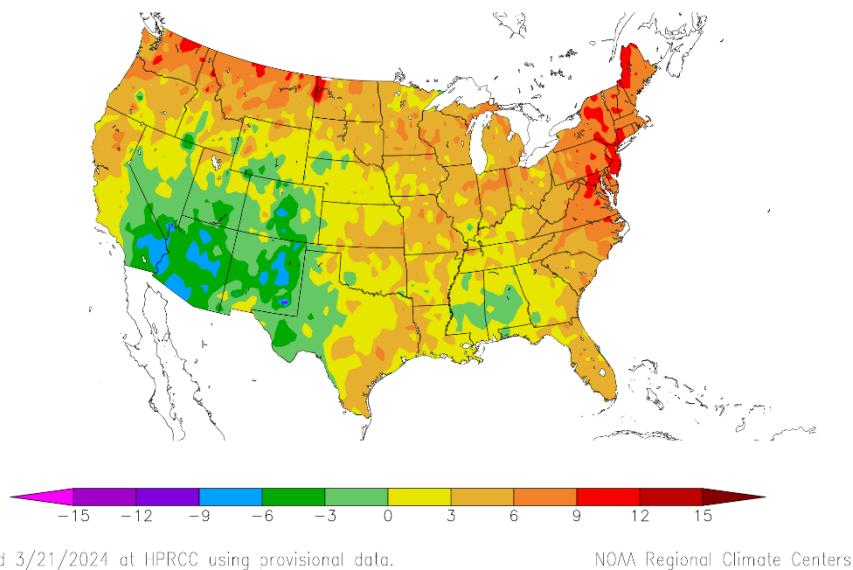
Last 7 Days, National Weather Service (NWS) Networks

Source: Regional Climate Centers

[7-day temperature anomaly map](#) for the contiguous U.S.

Departure from Normal Temperature (F)
3/14/2024 – 3/20/2024

See also: [7-day temperature \(° F\) map](#)



Generated 3/21/2024 at HPRCC using provisional data.

NOAA Regional Climate Centers

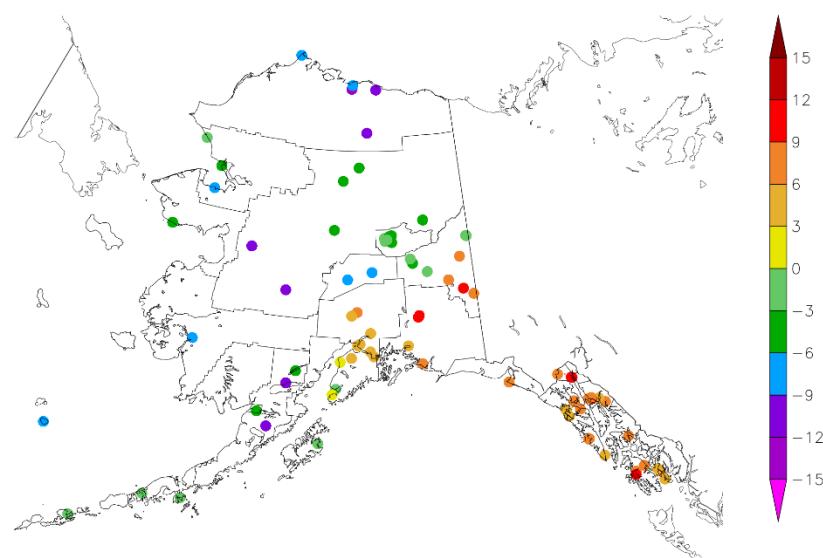
Last 7 Days, National Weather Service (NWS) Networks

Source: Regional Climate Centers

[7-day temperature anomaly map](#) for Alaska.

Departure from Normal Temperature (F)
3/14/2024 – 3/20/2024

See also:
[7-day temperature \(° F\) map](#)



Generated 3/21/2024 at HPRCC using provisional data.

NOAA Regional Climate Centers

Water and Climate Update

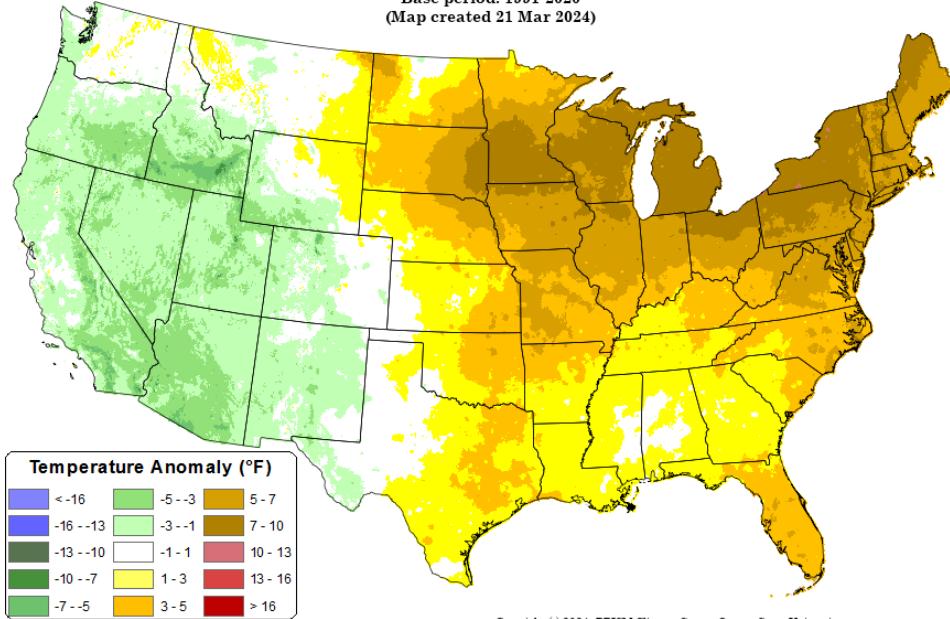
Month-to-Date, All Available Data Including SNOTEL and NWS Networks

Source: PRISM

[Month-to-date
national daily
mean
temperature
anomaly map](#)

Daily Mean Temperature Anomaly: 01 Mar 2024 - 20 Mar 2024

Period ending 7 AM EST 20 Mar 2024
Base period: 1991-2020
(Map created 21 Mar 2024)

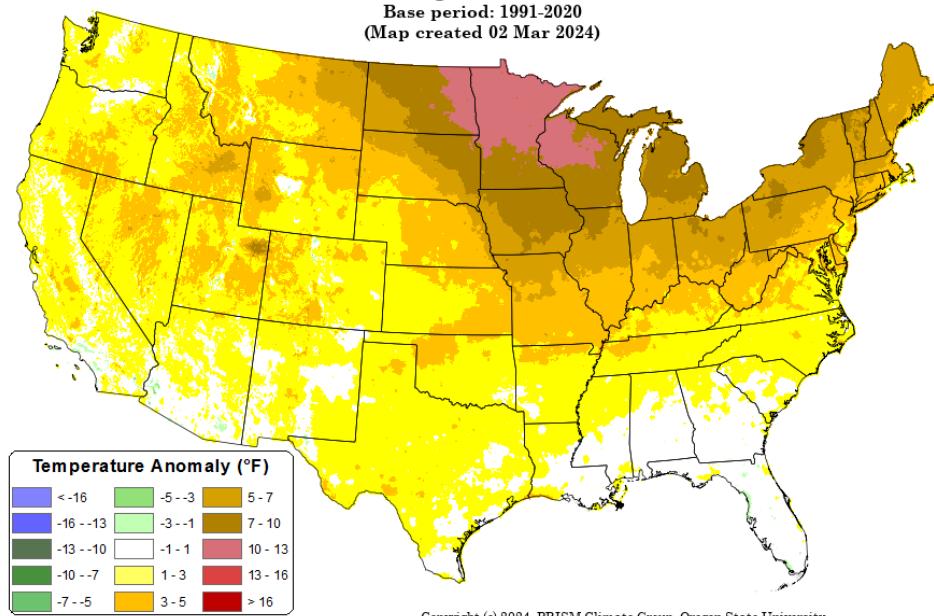


Last 3 Months, All Available Data Including SNOTEL and NWS Networks

Source: PRISM

Daily Mean Temperature Anomaly: Dec 2023 - Feb 2024

Period ending 7 AM EST 29 Feb 2024
Base period: 1991-2020
(Map created 02 Mar 2024)



[December 2023
through February 2024
daily mean
temperature anomaly
map](#)

Drought

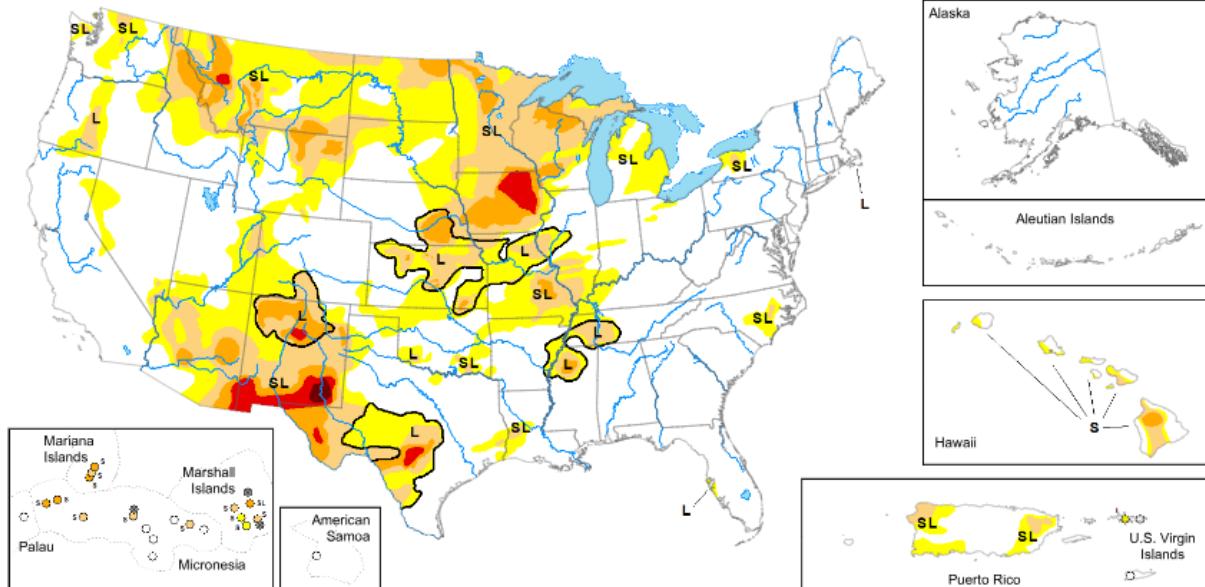
U.S. Drought Monitor

Source: National Drought Mitigation Center

Map released: March 21, 2024

Data valid: March 19, 2024

View grayscale version of the map



United States and Puerto Rico Author(s):

[Brad Rippey](#), U.S. Department of Agriculture

More maps and statistics:

[U.S. States and Puerto Rico](#)

[Continental U.S.](#)

[Regions ▾](#)

Pacific Islands and Virgin Islands Author(s):

[Richard Heim](#), NOAA/NCEI

The data cutoff for Drought Monitor maps is each Tuesday at 8 a.m. EDT. The maps, which are based on analysis of the data, are released each Thursday at 8:30 a.m. Eastern Time.

Intensity and Impacts

None

D0 (Abnormally Dry)

D1 (Moderate Drought)

D2 (Severe Drought)

D3 (Extreme Drought)

D4 (Exceptional Drought)

No Data

- Delineates dominant impacts

S - Short-term impacts, typically less

than 6 months (agriculture, grasslands)

L - Long-term impacts, typically greater

than 6 months (hydrology, ecology)

SL - Short- and long-term impacts

Current National Drought Summary, March 19, 2024

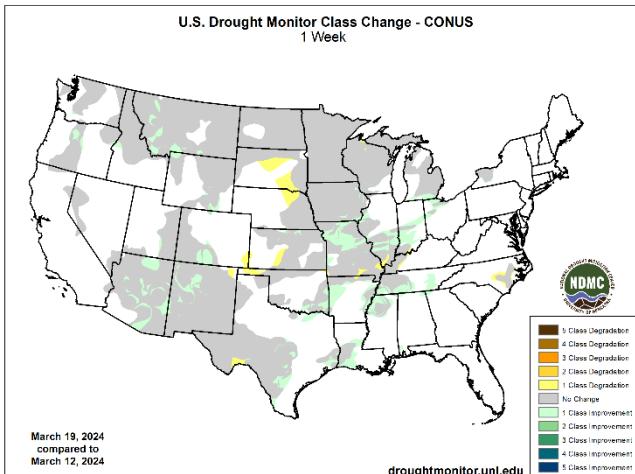
Source: National Drought Mitigation Center

"During the drought-monitoring period ending March 19, active weather shifted southward from the central Rockies and lower Midwest. Eventually, significant precipitation fell across much of the southern United States. Locally severe thunderstorms were most numerous from the southeastern Plains into the Ohio and Tennessee Valleys. Based on preliminary reports, the mid-March outbreak included more than three dozen tornadoes, one of which resulted in three fatalities in western Ohio on March 14. Meanwhile, the northern Plains and upper Midwest experienced mostly dry weather. Elsewhere, the southern High Plains escaped a short-lived round of windy, dry weather without any major wildfires, unlike the late-February episode. Recovery efforts continued in fire-affected areas, primarily across the Texas Panhandle, but extending to other areas on the central and southern Plains. As the drought-monitoring period progressed, record-setting warmth first retreated from the Midwest and Northeast into the Deep South, then appeared in the Northwest. By March 19, freezes deep into the Southeast threatened a variety of crops, including blooming fruits and winter grains. On that date in Alabama, both Anniston and Tuscaloosa posted daily-record lows of 28°F."

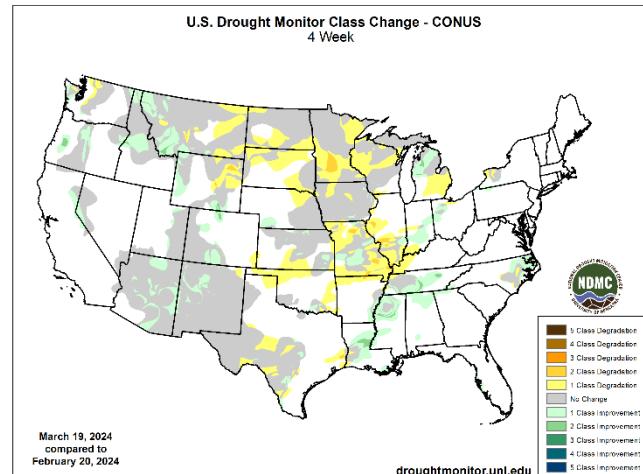
Changes in Drought Monitor Categories over Time

Source: National Drought Mitigation Center

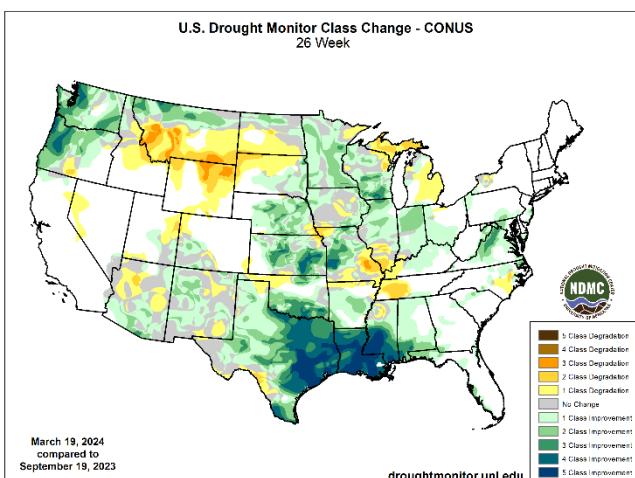
1 Week



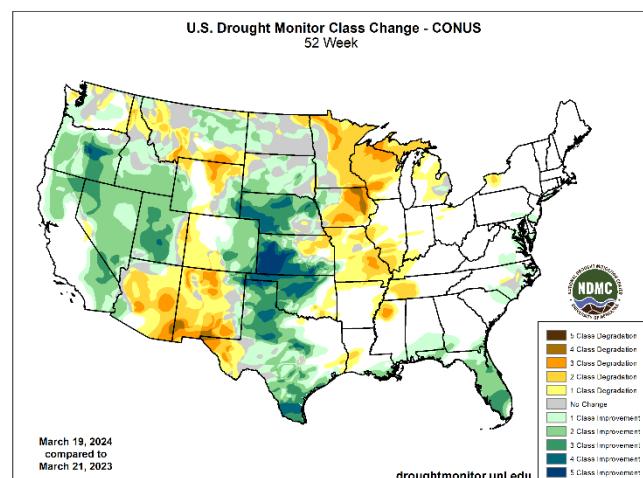
1 Month



6 Months



1 Year



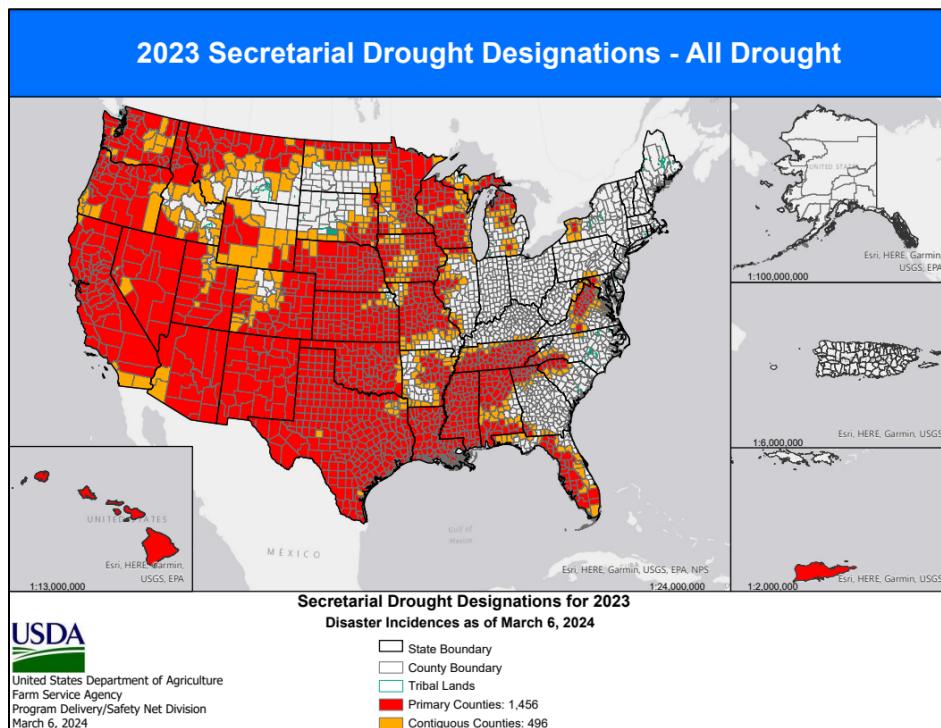
[Changes in drought conditions over the last 12 months for the contiguous U.S.](#)

Highlighted Drought Resources

- [Drought Impact Reporter](#)
- [Quarterly Regional Climate Impacts and Outlook](#)
- [U.S. Drought Portal Indicators and Monitoring](#)
- [U.S. Population in Drought, Weekly Comparison](#)
- [USDA Disaster and Drought Information](#)

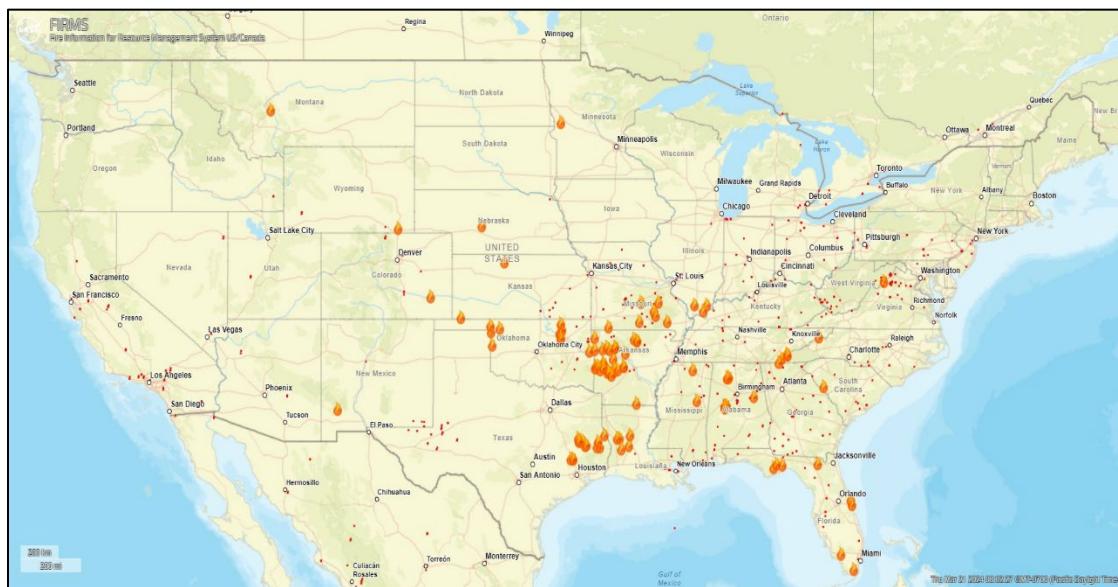
USDA Secretarial Drought Designations

Source: USDA Farm Service Agency



Wildfires: Fire Information for Resource Management System US/Canada

Source: NASA/USDA Forest Service



Current active wildfires larger than 1,000 acres in size

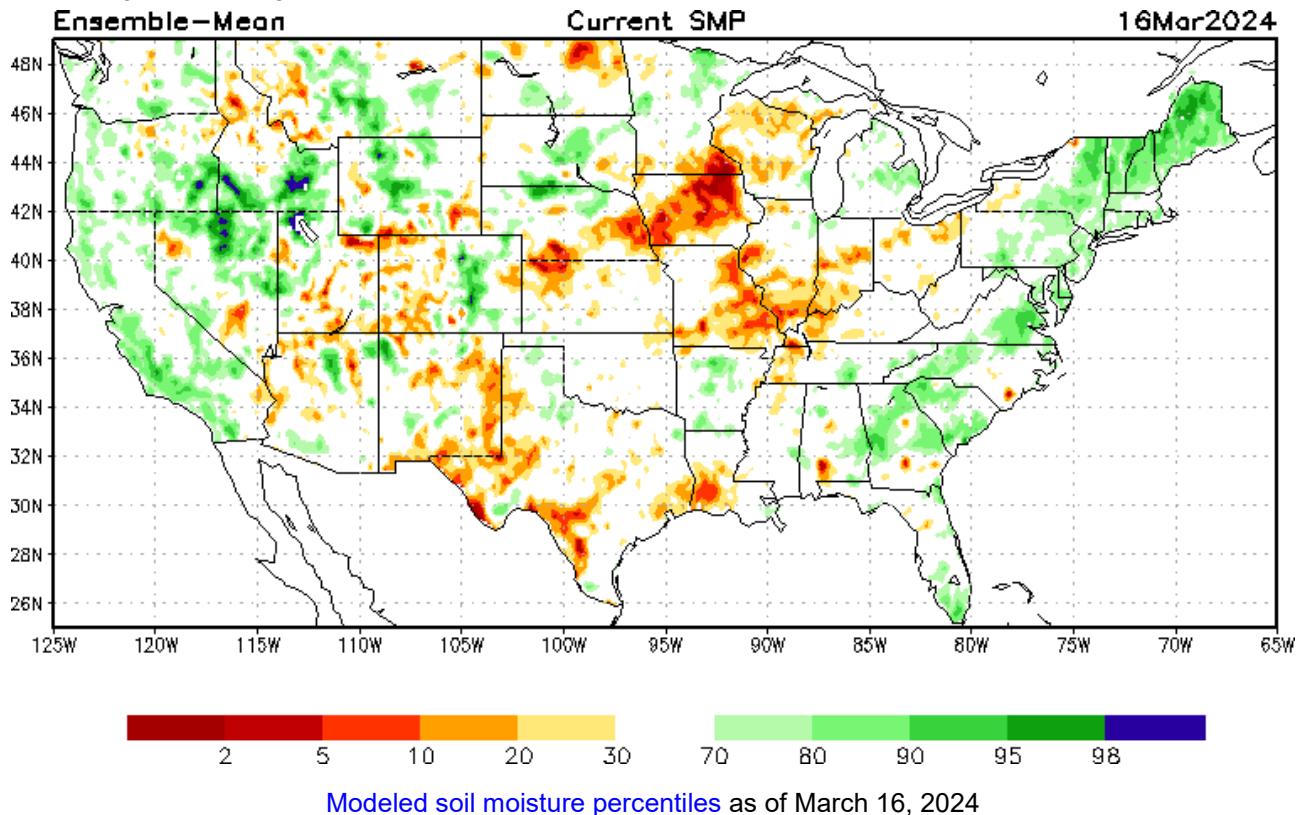
Highlighted Wildfire Resources

- [National Interagency Fire Center](#)
- [InciWeb Incident Information System](#)
- [Significant Wildland Fire Potential Outlook](#)

Other Climatic and Water Supply Indicators

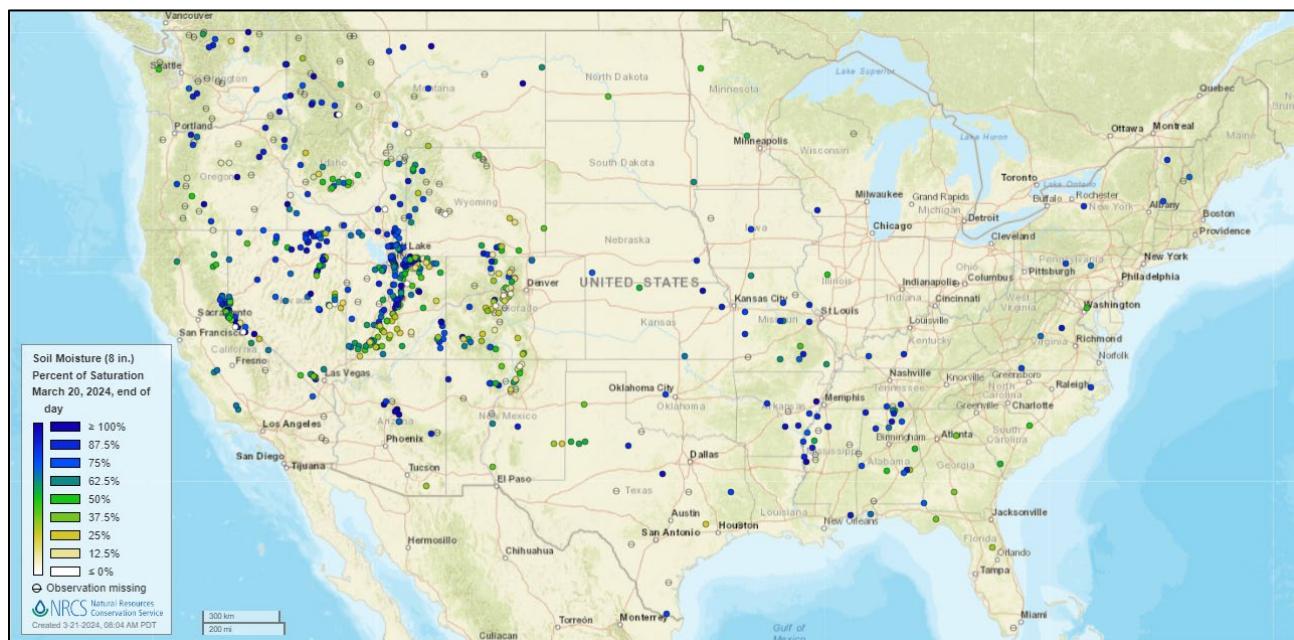
Soil Moisture

Source: NOAA National Centers for Environmental Prediction



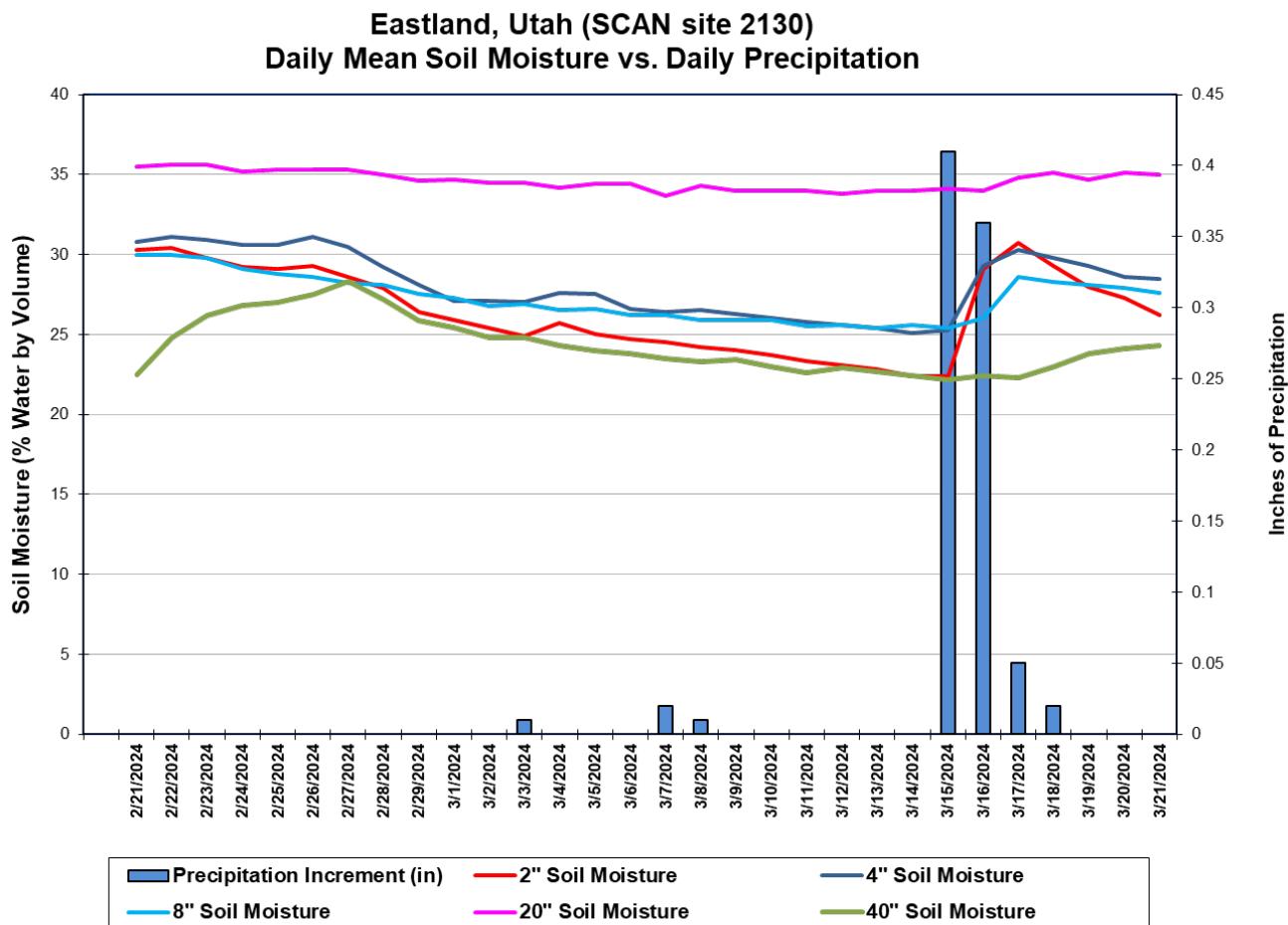
Soil Moisture Percent of Saturation

Source: NRCS SNOTEL and [Soil Climate Analysis Network \(SCAN\)](#)
[U.S. soil moisture map at 8-inch depth:](#)



Soil Moisture

Source: NRCS [Soil Climate Analysis Network](#) (SCAN)



This chart shows the precipitation and soil moisture for the last 30 days at the [Eastland](#) SCAN site in Utah. Soil sensors at all depths indicate a general decrease in soil moisture at the site between February 21 and March 14. After a storm system brought 0.84 inches of precipitation to this location between March 15-18, soil moisture levels can be seen increasing at all sensor depths. Total precipitation for the 30-day period was 0.88 inches.

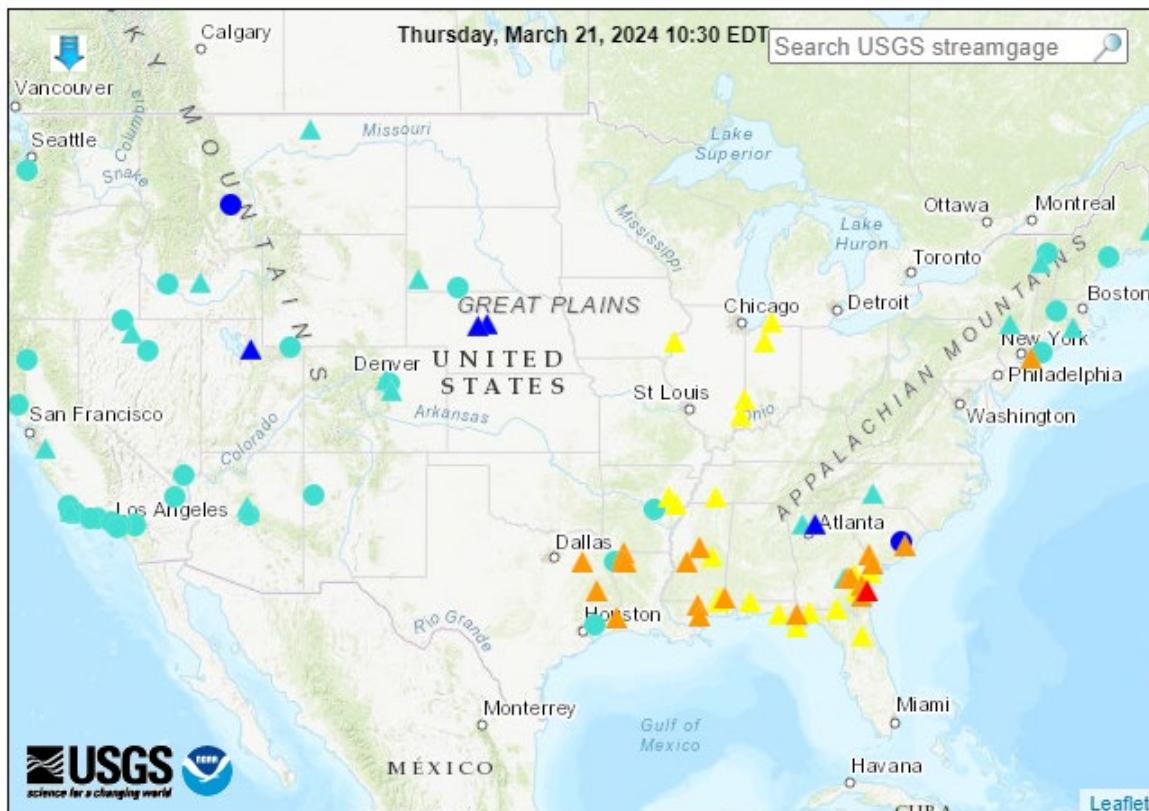
Soil Moisture Data Portals

- [USCRN Soil Moisture](#)
- [National Soil Moisture Network](#)
- [NOAA Climate Prediction Center Soil Moisture](#)
- [NASA Grace](#)

Streamflow, Drought, Flood, and Runoff

Source: U.S. Geological Survey [WaterWatch Streamflow Map](#)

Map of flood and high flow conditions (21 in floods [moderate: 1, minor: 20], 20 in near-flood)



| Explanation - Percentile classes | | | | | | | |
|---|-------|-----------|--------------------|--|----------------------------|-------------------------|--|
| <95 | 95-98 | ≥ 99 | Above action stage | Above flood stage | Above moderate flood stage | Above major flood stage | |
| \triangle Streamgage with flood stage | | | | \circ Streamgage without flood stage | | | |

[WaterWatch: Streamflow, drought, flood, and runoff conditions](#)

Reservoir Storage

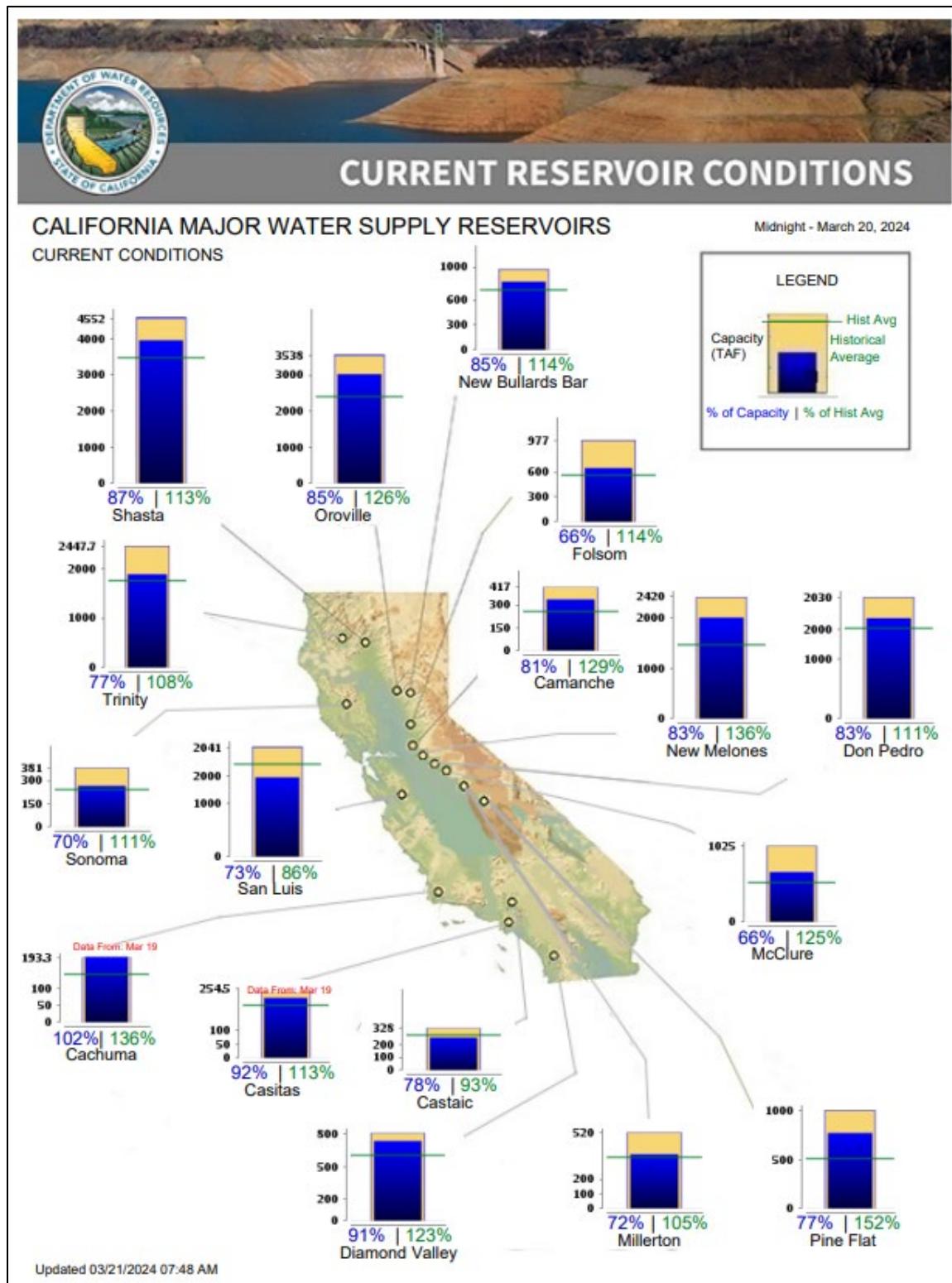
Hydromet Teacup Reservoir Depictions

Source: U.S. Bureau of Reclamation

- [Upper Colorado](#)
- [Pacific Northwest/Snake/Columbia](#)
- [Sevier River Water, Utah](#)
- [Upper Missouri, Kansas, Oklahoma, Texas](#)

Current California Reservoir Conditions

Source: California Department of Water Resources



[Current California Reservoir Conditions](#)

Agricultural Weather Highlights

Author: Brad Rippey, Agricultural Meteorologist, USDA/OCE/WAOB

National Outlook, Thursday March 21, 2024: "Any lingering snow in northern New England will end later today. Meanwhile, the first (and weaker) of two storm systems will cross the northern Plains and upper Midwest, delivering widespread snow. With the initial system, the most significant snow should stretch from northern Montana to Wisconsin, with some freezing rain expected along the southern edge of the precipitation shield. Farther south, a separate weather system will produce late-week rain in the Gulf and Atlantic Coast States, with totals reaching 1 to 3 inches in some locations. During the weekend and early next week, the second Northern storm will produce wind-driven snow and freezing rain across the northern Plains and upper Midwest. Following the second storm, unusually cold air will drive southward across the Plains, with temperatures by early next week forecast to plunge below 20°F as far south as the central High Plains. At the same time, scattered temperatures below 0°F may occur on the northern High Plains, while freezes will reach into northern Texas. The NWS 6- to 10-day outlook for March 26 – 30 calls for near- or above-normal temperatures in the East, while colder-than-normal conditions will stretch from the Pacific Coast to Mississippi Valley. Meanwhile, wetter-than-normal weather will cover the entire country, except the south-central U.S., with the greatest likelihood of wet conditions focused across the West and the Southeast."

Weather Hazards Outlook: March 23 – 27, 2024

Source: NOAA Weather Prediction Center

U.S. Day 3-7 Hazards Outlook

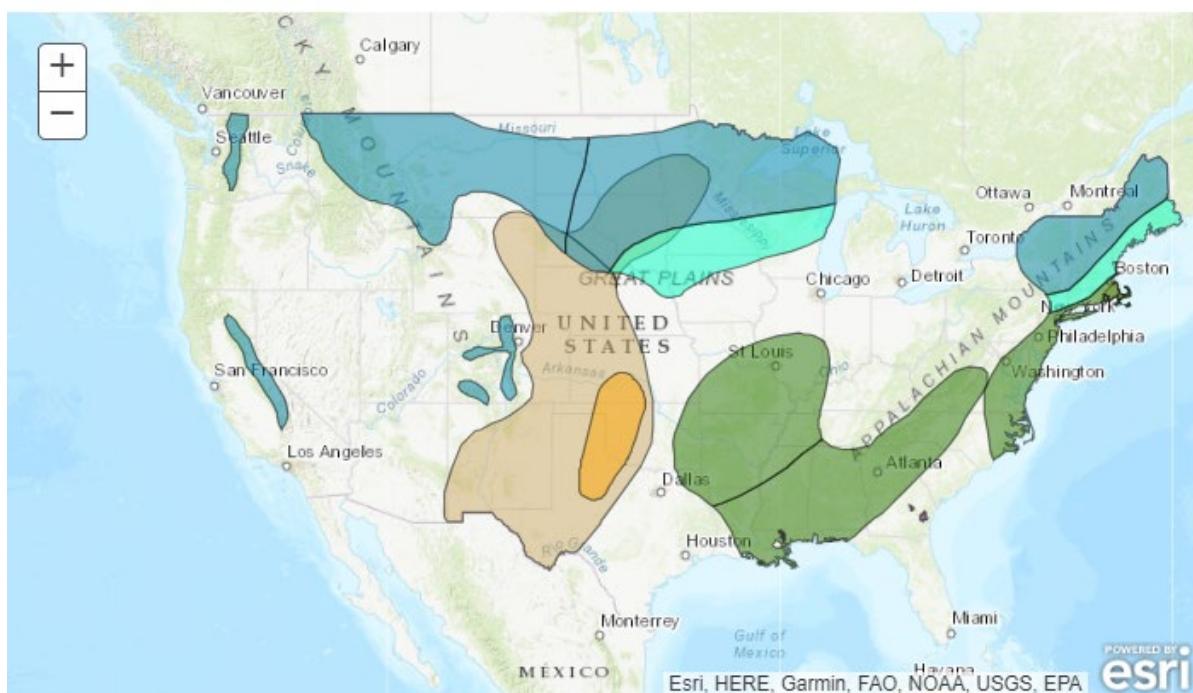
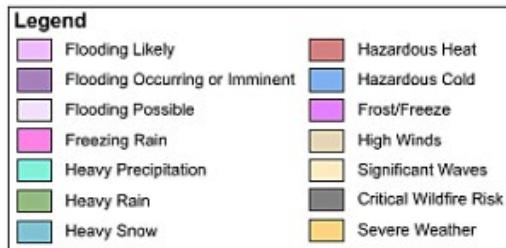
About the Hazards Outlook

Created March 20, 2024

NOTE: These products are only created Monday through Friday. Please exercise caution using this outlook during the weekend.

| | |
|---------------|-------------------------------------|
| Precipitation | <input checked="" type="checkbox"/> |
| Temperature | <input checked="" type="checkbox"/> |
| Wildfires | <input checked="" type="checkbox"/> |
| Soils | <input type="checkbox"/> |

Valid March 23, 2024 - March 27, 2024

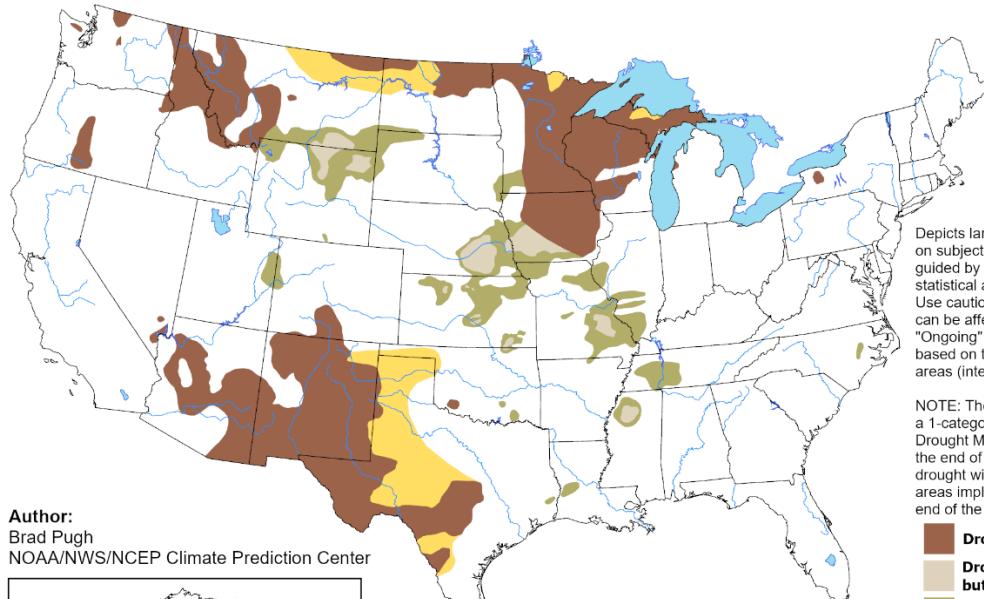


Seasonal Drought Outlook: March 21 – June 30, 2024

Source: National Weather Service

U.S. Seasonal Drought Outlook Drought Tendency During the Valid Period

Valid for March 21 - June 30, 2024
Released March 21, 2024



Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short lived events. "Ongoing" drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to D4).

NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period, although drought will remain. The green areas imply drought removal by the end of the period (D0 or none).

- █ Drought persists
- █ Drought remains, but improves
- █ Drought removal likely
- █ Drought development likely
- █ No drought

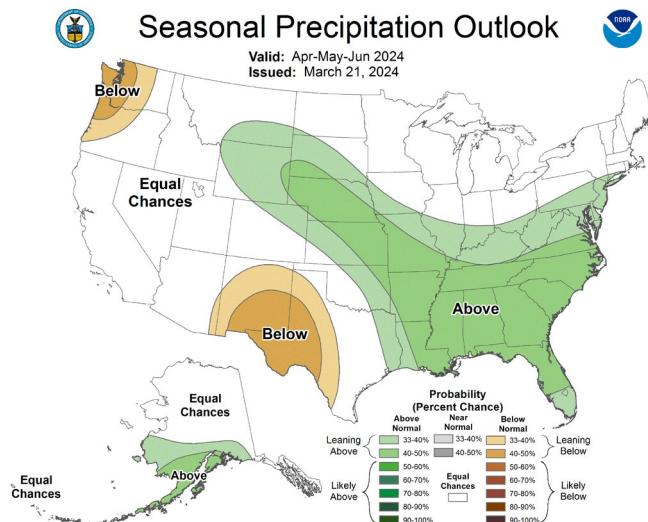


<https://go.usa.gov/3eZ73>

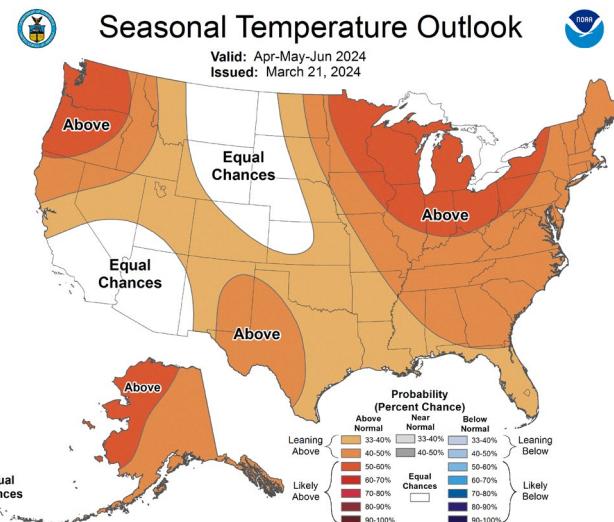
Climate Prediction Center Three-month Outlook

Source: National Weather Service

Precipitation



Temperature



[April-May-June 2024 precipitation and temperature outlook summaries](#)

More Information

The NRCS [National Water and Climate Center](#) publishes this weekly report. We welcome your feedback. If you have questions or comments, please [contact us](#).